

## CLAIMS

What is claimed is:

1 1. A method for copying/archiving a web based application, said method  
2 comprising:  
3 initializing a file to store said web based application, including creation of a  
4 root directory within said file;  
5 creating data directories under said root directory, and initializing a first  
6 plurality of storage data objects under said data directories for all non-file system  
7 structures of the web based application; and  
8 copying and storing said non-file system structures into said first plurality of  
9 storage data objects.

1 2. The method of claim 1, wherein said initializing of a file to store said web  
2 based application comprises initializing a compressable file.

1 3. The method of claim 1, wherein said creating of data directories under said  
2 root directory and initializing a first plurality of storage data objects under said data  
3 directories comprises creating an application level data directory under said root  
4 directory.

1 4. The method of claim 3, wherein said creating of data directories under said  
2 root directory and initializing a first plurality of storage data objects under said data  
3 directories further comprises

4        initializing a first of said first plurality of storage data objects under said  
5        application level data directory to store a structural description describing non-file  
6        system structures and files of a file system of the web based application; and  
7        copying and storing said structure description in said first of said first plurality  
8        of storage data objects.

1        5.        The method of claim 4, wherein said copying and storing of non-file system  
2        structures into said first plurality of storage data objects comprises  
3        initializing a second of said first plurality of storage data objects under said  
4        application level data directory to store a user description describing users of the  
5        web based application; and  
6        copying and storing said user description in said second of said first plurality  
7        of storage data objects.

1        6.        The method of claim 3, wherein said creating of data directories under said  
2        root directory and initializing a first plurality of storage data objects under said data  
3        directories further comprises creating a plurality of data table directories under said  
4        application level data directory.

1        7.        The method of claim 6, wherein said creating of data directories under said  
2        root directory and initializing a first plurality of storage data objects under said data  
3        directories further comprises  
4        initializing a first subset of said first plurality of storage data objects under  
5        said data table directory to store data table schemas of the web based application;  
6        and

7           initializing a second subset of said first plurality of storage data objects under  
8   said data table directory to data tables of the web based application.

1   8.     The method of claim 7, wherein said copying and storing of non-file system  
2   structures into said first plurality of storage data objects comprises copying and  
3   storing data table schemas and data tables of the web based application into  
4   corresponding pairs of said first and second subset of said first plurality of storage  
5   data objects.

1   9.     The method of claim 1, wherein the method further comprises copying and  
2   storing files of the web based application that are part of a file system into said file  
3   for storing said web based application as second plurality of storage data objects  
4   under said root directory.

1   10.    The method of claim 9, wherein said copying and storing of files of the web  
2   based application that are part of a file system into said file for storing said web  
3   based application as second plurality of storage data objects under said root  
4   directory comprises pre-processing access control lists into a self-describing format  
5   before storing the access control lists into selected ones of said second plurality of  
6   storage data objects.

1   11. An apparatus comprising:  
2       storage medium having stored therein programming instructions, when  
3   executed, operate the apparatus to  
4       initialize a file to store said web based application, including creation of a  
5       root directory within said file;

6 create data directories under said root directory, and initializing a first  
7 plurality of storage data objects under said data directories for all non-  
8 file system structures of the web based application; and  
9 copy and store said non-file system structures into said first plurality of  
10 storage data objects; and  
11 a processor coupled to the storage medium to execute the programming  
12 instructions.

1 12. The apparatus of claim 11, wherein said programming instructions, when  
2 executed, operate the apparatus to initialize a compressable file to store said web  
3 based application.

1 13. The apparatus of claim 11, wherein said programming instructions, when  
2 executed, operate the apparatus to create an application level data directory under  
3 said root directory to create data directories under said root directory and initialize a  
4 first plurality of storage data objects under said data directories.

1 14. The apparatus of claim 13, wherein said programming instructions, when  
2 executed, operate the apparatus to  
3 initialize a first of said first plurality of storage data objects under said  
4 application level data directory to store a structural description  
5 describing non-file system structures and files of a file system of the  
6 web based application, and  
7 copy and store said structure description in said first of said first plurality  
8 of storage data objects.  
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1 15. The apparatus of claim 14, wherein said programming instructions, when  
2 executed, operate the apparatus to initialize a second of said first plurality of storage  
3 data objects under said application level data directory to store a user description  
4 describing users of the web based application, and to copy and store said user  
5 description in said second of said first plurality of storage data objects.

1 16. The apparatus of claim 13, wherein said programming instructions, when  
2 executed, operate the apparatus to create a plurality of data table directories under  
3 said application level data directory to create data directories under said root  
4 directory and initialize a first plurality of storage data objects under said data  
5 directories.

1 17. The apparatus of claim 16, wherein said programming instructions, when  
2 executed, operate the apparatus to  
3 initialize a first subset of said first plurality of storage data objects under  
4 said data table directory to store data table schemas of the web based  
5 application, and  
6 initialize a second subset of said first plurality of storage data objects  
7 under said data table directory to data tables of the web based  
8 application.  
9

1 18. The apparatus of claim 17, wherein said programming instructions, when  
2 executed, operate the apparatus to copy and store data table schemas and data

3 tables of the web based application into corresponding pairs of said first and second  
4 subset of said first plurality of storage data objects to copy and store non-file system  
5 structures into said first plurality of storage data objects.

1 19. The apparatus of claim 11, wherein said programming instructions, when  
2 executed, operate the apparatus to copy and store files of the web based  
3 application that are part of a file system into said file for storing said web based  
4 application as second plurality of storage data objects under said root directory.

1 20. The apparatus of claim 19, wherein said programming instructions, when  
2 executed, operate the apparatus to pre-process access control lists into a self-  
3 describing format before storing the access control lists into selected ones of said  
4 second plurality of storage data objects.

1 21. A method for copying/restoring a web based application into a domain, said  
2 method comprising:

3 retrieving a structural description describing non-file system structures and  
4 files of the web based application;

5 determining in accordance with at least said structural description non-file  
6 system structures of the web based application, including constitutions of the non-  
7 file system structures, and files of the web based application, including pathnames  
8 of the files;

9 retrieving schemas and data ones of said non-file system structures in  
10 accordance with the result of said determination;

11 storing said data ones of said non-file system structures in accordance with  
12 schema ones of said non-file system structures; and

13           retrieving and storing said files in accordance with the result of said  
14 determination.

1    22.    The method of claim 21, wherein said retrieving and storing of files of the web  
2    based application comprises transforming one or more access control lists into a  
3    binary format before storing the one or more access control lists.

1    23.    An apparatus comprising:  
2           a storage medium having stored therein a plurality of programming  
3    instructions, when executed, operate the apparatus to  
4           retrieve a structural description describing non-file system structures and  
5           files of a web based application,  
6           determine in accordance with at least said structural description non-file  
7           system structures of the web based application, including constitutions  
8           of the non-file system structures, and files of the web based  
9           application, including pathnames of the files,  
10          retrieve schemas and data ones of said non-file system structures in  
11          accordance with the result of said determination,  
12          store said data ones of said non-file system structures in accordance with  
13          schema ones of said non-file system structures, and  
14          retrieve and store said files in accordance with the result of said  
15          determination; and  
16          at least one processor coupled to the storage medium to execute the  
17    programming instructions.

1 24. The apparatus of claim 23, wherein the programming instructions, when  
2 executed, further operate the apparatus to transform a access control list into a  
3 binary format before storing the access control list.

1 25. A method for copying/restoring a web based application into a domain, said  
2 method comprising:

3 retrieving a plurality of data table schemas for a plurality of data tables of the  
4 web based application, and data of the data tables;

5 as each data table schema is retrieved,

6 storing the data table schema in a temporal storage location,

7 creating a data table in accordance with the data table schema,

8 determining if data for the data table has already been retrieved,

9 storing the data into the data table if the data for the data table has

10 already been retrieved; and

11 as each collection of data for a data table is retrieved,

12 storing the collection of data in a temporal storage location,

13 determining if the data table has already been created,

14 storing the data into the data table if the data table has already been

15 created.

1 26. The method of claim 25, wherein the method further comprises upon storing  
2 the data of a data table into the data table, deleting the data table schema and the  
3 data of the data table stored in the respective temporal storage locations.



1 27. The method of claim 25, wherein the method further comprises deleting log-in  
2 user names of users when storing data into a data table if the data table is an  
3 address book.

1 28. The method of claim 27, wherein the method further comprises determining if  
2 users having entries in an address book are authorized to log in the domain, and  
3 adding into corresponding entries of the address book log-in user names of users  
4 authorized to log in the domain.

1 29. The method of claim 25, wherein the method further comprises conditionally  
2 deleting or retaining log-in user names of users depending on whether the users are  
3 authorized to log in the domain when storing data into a data table if the data table  
4 is an address book.

1 30. The method of claim 25, wherein the method further comprises  
2 retrieving a list of users of the web based applications;  
3 determining if the users are registered with the domain; and  
4 registering the users with the domain if the users are determined to be not  
5 having registered with the domain.

1 31. The method of claim 30, wherein the method further comprises  
2 determining if the users already have corresponding entries in an address  
3 book of the web based application;  
4 creating the corresponding entries in the address book if the corresponding  
5 entries are determined not to have been previously created; and

6           upon either determining the existence or creation of the corresponding  
7           entries, updating the corresponding entries with log-in user names of the users.

1    32.    An apparatus comprising:  
2           a storage medium having stored therein a plurality of programming  
3           instructions, when executed, operate the apparatus to  
4           retrieve a plurality of data table schemas for a plurality of data tables of a  
5           web based application, and data of the data tables,  
6           as each data table schema is retrieved,  
7           store the data table schema in a temporal storage location,  
8           create a data table in accordance with the data table schema,  
9           determine if data for the data table has already been retrieved,  
10          store the data into the data table if the data for the data table has  
11          already been retrieved, and  
12          as each collection of data for a data table is retrieved,  
13          store the collection of data in a temporal storage location,  
14          determine if the data table has already been created,  
15          store the data into the data table if the data table has already been  
16          created; and  
17          at least one processor coupled to the storage medium to execute the  
18          programming instructions.

1    33.    The apparatus of claim 32, wherein the programming instructions, when  
2           executed, further operate the apparatus to delete the data table schema and the  
3           data of the data table stored in the respective temporal storage locations, upon  
4           storing the data of a data table into the data table.

1 34. The apparatus of claim 32, wherein the programming instructions, when  
2 executed, further operate the apparatus to delete log-in user names of users when  
3 storing data into a data table if the data table is an address book.

1 35. The apparatus of claim 34, wherein the programming instructions, when  
2 executed, further operate the apparatus to determine if users having entries in an  
3 address book are authorized to log in the domain, and add into corresponding  
4 entries of the address book log-in user names of users authorized to log in the  
5 domain.

1 36. The apparatus of claim 32, wherein the programming instructions, when  
2 executed, further operate the apparatus to conditionally delete or retain log-in user  
3 names of users depending on whether the users are authorized to log in the domain  
4 when storing data into a data table if the data table is an address book.

1 37. The apparatus of claim 32, wherein the programming instructions, when  
2 executed, further operate the apparatus to  
3 retrieve a list of users of the web based applications;  
4 determine if the users are registered with the domain; and  
5 register the users with the domain if the users are determined to be not  
6 having registered with the domain.

1 38. The apparatus of claim 37, wherein the programming instructions, when  
2 executed, further operate the apparatus to

- 3           determine if the users already have corresponding entries in an address book
- 4   of the web based application;
- 5           create the corresponding entries in the address book if the corresponding
- 6   entries are determined not to have been previously created; and
- 7           upon either determining the existence or creation of the corresponding
- 8   entries, update the corresponding entries with log-in user names of the users.
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